

**BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN**

Application of Madison Gas and Electric
Company for Authority to Change Electric and
Natural Gas Rates

Docket No. 3270-UR-120

**DIRECT TESTIMONY OF
PAMELA MORGAN ON BEHALF OF
THE NATURAL RESOURCES DEFENSE COUNCIL**

SEPTEMBER 18, 2014

TABLE OF CONTENTS

I. BACKGROUND AND INTRODUCTION 1

II. PURPOSE AND SUMMARY OF RECOMMENDATIONS 3

III. UTILITY-ORIENTED CONSIDERATIONS FOR MGE’S PROPOSAL..... 10

IV. CUSTOMER-ORIENTED CONSIDERATIONS FOR MGE’s PROPOSAL 14

 A. Rate Design Principles and Their Impact on Customers..... 15

 B. Analysis of MGE’s Rate Design Objectives 18

 C. Additional Rate Design Considerations Not Included in MGE’s Application 30

V. REQUEST FOR COMMISSION TO DEVELOP PROCEDURAL AND SUBSTANTIVE
REQUIREMENTS UPON WHICH TO EVALUATE MGE’S RATES 37

VI. CONCLUSION 43

I. BACKGROUND AND INTRODUCTION

Q. On whose behalf are you appearing in this matter?

A. I am testifying on behalf of the Natural Resources Defense Council (“NRDC”).

Q. Please summarize your experience.

A. My name is Pamela Morgan. My address is 17 Masaryk, Lake Oswego, Oregon 97035. I am President of Graceful Systems, LLC, the company I formed after I finished my 20-plus year career at Portland General Electric (“PGE”). Graceful Systems helps stakeholders in the energy utility system engage in collaborative processes to explore, understand, and develop generative strategy in response to complex challenges and opportunities. Because these are dynamic across time and space, and interrelate with many other challenges and opportunities, there is no single solution or path to success. Rather, stakeholders need practices by which they can collectively see current reality, loosen old ideas to make room for innovation and creativity, and adjust continually their collective actions to improve progress toward overcoming challenges and seizing opportunities.

Through Graceful Systems, and sometimes in partnership with others, I have engaged in diverse activities ranging from the development and delivery of a systems thinking training program for energy utility regulatory agencies, to assisting a utility regulatory commission with a collaborative review and assessment of its resource planning and procurement practices. Recent projects have also included the development of a comprehensive energy efficiency strategy and implementation package for Chile, and consulting on behalf of the United States Agency for International Development in Tanzania.

I have also appeared as an expert witness for NRDC on a number of occasions and participated in their work on national energy policy issues of importance to electric utilities,

1 including a major review of the results of decoupling policies nationwide. Pertinent to this
2 case, I appeared before the Missouri Public Service Commission for NRDC in 2012,
3 testifying in opposition to a proposal by Union Electric Company d/b/a/Ameren Missouri to
4 increase its residential and small commercial customer charges by approximately 50%. I
5 have also appeared as NRDC's witness on cases in Iowa, Indiana, and Michigan.

6 **Q. Please provide the specific educational background and professional experience that**
7 **qualify you to appear in this proceeding.**

8 A. I am a graduate of Washington State University and the University of Washington School of
9 Law. I first entered the energy utility field in 1984, representing industrial customers of
10 electric and natural gas utilities in the Pacific Northwest. In 1986, I joined PGE as Associate
11 General Counsel. I held a variety of positions at PGE concerned with regulation, becoming
12 Vice President of Regulatory Affairs in 1996. I briefly left PGE in 1997 to work for a
13 software and services company called ConneXt. I re-joined PGE in 1999 as Vice President
14 of Regulatory Affairs, responsible for state and federal economic regulation, among other
15 things, including strategy as of 2004. During my years in Regulatory Affairs, I worked on
16 many matters pertinent to this docket, including:

- 17 • All cost recovery and rate-related matters, including revenue requirement, rate spread,
18 and rate design;
- 19 • Regulatory accounting;
- 20 • Cost of capital, including the issue of imputed debt from long-term contractual
21 commitments;
- 22 • The preparation and review of Integrated Resource Plans, including renewable
23 resources;

- 1 • Design and approval of energy efficiency programs;
- 2 • All aspects of cost recovery related to energy efficiency, including the collaborative
- 3 development of a decoupling mechanism that was in place for PGE during 1995 and
- 4 1996;
- 5 • The development of regulatory guidelines on competitive bidding and subsequent
- 6 Requests for Proposal done by PGE under those guidelines;
- 7 • The development and filing of avoided costs.

8 In addition, my roles in Regulatory Affairs, Strategy, and Government Affairs required
9 that I be conversant with many electricity and energy policy issues, including those involved
10 in this docket.

11 Attached hereto as *Ex.-NRDC-Morgan-1* is my curriculum vitae, which describes my
12 qualifications in more detail.

13 **Q. Have you previously testified before the Public Service Commission of Wisconsin (the**
14 **“Commission”) or any other state utility regulatory commission?**

15 A. I have testified many times during my career. While many of these instances were before the
16 Public Utility Commission of Oregon in connection with my position at PGE, several have
17 occurred in the Midwest, including the states of Michigan, Indiana, Ohio, Iowa, and
18 Missouri. While I have not testified before this Commission, in 2011 along with my partner
19 in the project – Beatrice Benne – I had the privilege of engaging some of the Staff of this
20 Commission and several outside parties in a two-day workshop on “systems thinking.”

21 **II. PURPOSE AND SUMMARY OF RECOMMENDATIONS**

22 **Q. What is the purpose of your testimony in this proceeding?**

23 A. I am testifying regarding certain of Madison Gas and Electric Company’s (“MGE”) rate

1 design proposals in this proceeding. Specifically, I will present testimony concerning
2 MGE's:

- 3 • Proposal to increase the general residential service ("Rg-1") and residential time of
4 use ("Rg-2") customer charges from \$10.44 to \$14.97/month and add a monthly
5 "Grid Connection Service" charge of \$4.03, for a total fixed charge of \$19/month, an
6 increase in this rate element of over 80%.¹
- 7 • Proposal to increase the general small commercial and industrial lighting and power
8 service ("Cg-5") customer charge from \$10.44 to \$19.90/month and add a monthly
9 "Grid Connection Service" charge of \$4.03, for a total fixed charge of \$23.93/month,
10 an increase in this rate element of almost 130%.²
- 11 • Proposal to increase the residential natural gas distribution ("RD-1") customer charge
12 from \$12.17 to \$21.87/month, which increases this rate element by approximately
13 80%.³
- 14 • Initial proposal for additional rate design changes through 2017,⁴ including the
15 addition of demand charges to electric rate schedules that presently lack them, and
16 setting these at fixed values for at least several years. These proposals would have
17 raised monthly fixed charges for residential customers, over a two year period, to
18 \$48.66. In 2017, MGE estimated that it would propose to increase these fixed

¹ Second Supplemental Direct Testimony of Steven S. James on Behalf of MGE, Exh. 1r (second), Schedule 1, pages 2-3 (PSC REF#: 214050).

² *Id.*, Exh. 1r (second), Schedule 1, page 8.

³ Second Supplemental Direct Testimony of Timm A. Minor on Behalf of MGE, Exh. 2r.

⁴ These proposals were withdrawn in June 2014 following MGE's agreement with Citizens Utility Board ("CUB") to suspend its request and file a revised proposal for 2015, with the utility intending to work with CUB before coming back for another rate case on its 2016 proposal. *See* James Second Supplemental Direct at 2 (PSC REF#: 214049); *see also* Second Supplemental Direct Testimony of John D. Krueger on Behalf of MGE at 2 (PSC REF#: 214051).

1 charges further to approximately \$68.36.⁵ Similar fixed charge increases were
2 proposed for Cg-5, which add up to approximately \$110/month by 2017, and for the
3 optional time-of-use schedules Rg-2 and Cg-3. Schedules for customers using larger
4 amounts of electricity also had proposed increases in fixed and/or demand charges.⁶
5 MGE Witness Bollom provided the policy support for all of these changes.⁷
6 Although MGE has now withdrawn its initial testimony and exhibits and replaced
7 them with a supplemental filing on these specific proposals, MGE Witness Krueger
8 identifies the 2016 and 2017 rate proposals only as “suspended”⁸ and indicates that
9 MGE will be working with CUB to obtain input over the next six to nine months. But
10 it is timely for the Commission to provide guidance *now* in this case on both its
11 procedural and substantive expectations in connection with any such proposals MGE
12 may make in a subsequent case.

13 **Q. Is there a larger context for MGE’s rate design proposals?**

14 A. Yes. Other Wisconsin utilities are seeking to substantially increase their fixed customer
15 charges. Wisconsin Public Service Corporation (“WPSC”) is proposing to increase its
16 residential fixed customer charge from \$10.40 to \$25/month and its small commercial fixed
17 customer charge from \$12.50 to \$35/month.⁹ We Energies is also proposing to increase its
18 residential and small commercial customer fixed charges from \$9 to \$16/month.¹⁰ It is
19 possible that other Wisconsin utilities may join this trend in their next rate cases.

20 **Q. What are your recommendations on these issues?**

⁵ Direct Testimony of Steven S. James on Behalf of MGE at 6 (PSC REF#: 205589).

⁶ *Id.*, Exh.1 (PSC REF#: 205590).

⁷ Direct Testimony of Gregory A. Bollom on Behalf of MGE (PSC REF#: 205588).

⁸ Krueger Second Supplemental Direct Testimony at 3 (PSC REF#: 214051).

⁹ See Docket 6690-UR-123, Direct Testimony of Ronda L. Ferguson on Behalf of WPSC at 6.

¹⁰ See Docket 05-UR-107, Direct Testimony of Eric A. Rogers on Behalf of We Energies, Ex.-WEPCO/WG-Rogers-14.

1 A. I make two overarching recommendations in this case, that the Commission:

- 2 1. Reject MGE's proposed increases to its residential and small commercial gas and
- 3 electricity fixed customer charges; and
- 4 2. Open a docketed process that begins to identify procedural steps and substantive
- 5 requirements for addressing the rate design changes proposed by Wisconsin's investor-
- 6 owned utilities, to include not just MGE, but WPSC and We Energies as well.

7 **Q. Would you please summarize your reasons for making the first recommendation?**

8 A. There are two main factors that form the basis for my conclusion that the Commission should
9 reject the identified fixed customer charge increases. These factors revolve around the
10 primary categories a Commission tends to consider in reviewing rate design changes: 1)
11 utility-oriented; and 2) customer-oriented. Utility-oriented rate design typically addresses
12 revenue instability or erosion that is threatening a utility's financial health. Customer-
13 oriented rate design includes fundamental shifts in how customers are using the utility system
14 or in the nature of the services customers need from that system. These reasons can also
15 exist simultaneously.

16 **Q. Why is it important to distinguish between these categories?**

17 A. It is important to determine whether a rate design change is being proposed on the basis of
18 either utility or customer-oriented reasons because the support necessary to justify the change
19 and the action that should be taken to design the change differ significantly between the two
20 categories.

21 If the change is being proposed primarily because the utility is experiencing financial
22 difficulties arising from revenue instability, there are far better tools to address those than
23 rate design (such as, for example, revenue decoupling).

1 On the other hand, customer-oriented reasons revolve around changes in the services
2 customers need and the ways in which they interact with the utility system.¹¹ If the reasons
3 for pursuing a given rate design are customer-oriented, there are significant procedural and
4 substantive steps that should precede Commission consideration of any drastic changes.
5 These steps will – and should – take time. Rate design affects how each individual customer
6 experiences its utility’s services. Changes of any significance deserve careful development
7 and thorough explanation so that individual customers are informed of the impacts and have
8 the opportunity to adjust their behavior to manage their utility service.

9 **Q. Does MGE’s proposal to increase fixed customer charge revolve primarily around**
10 **utility or customer-oriented objectives?**

11 A. As to the first consideration – utility-oriented rate designs – MGE has presented no testimony
12 or other bases upon which the Commission could conclude that the utility is in a financial
13 situation that requires such dramatic changes to its current customer charge structure.

14 Rather, MGE’s proposal appears to revolve primarily around customer-oriented
15 objectives (though I disagree with the way in which they were applied). As explained later
16 in this testimony, MGE identifies at least four objectives for its proposal, including
17 “economic efficiency,” the prevalence of restructured utilities in other states and the presence
18 of energy markets, “confusion” on the part of customers that invest in energy efficiency
19 measures, and the need to “get its rates and costs in better alignment” to address customer
20 interest in distributed generation.¹² However, my review of MGE’s application and the
21 utility’s underlying customer usage data demonstrate that the proposed fixed charge increases
22 would satisfy none of these objectives.

¹¹ In Section V I describe the process and substance by which stakeholders can best develop rate design changes for customer-oriented reasons.

¹² Bolloom Direct at 12 (PSC REF#: 205588).

1 Moreover, though customer impacts appear to form the basis for MGE's proposal, the
2 utility has nonetheless left customers out of the decision-making process. Instead the utility
3 has devised an approach that would (as discussed below) not only increase bills for the vast
4 majority of MGE's customers, but make it more difficult for consumers to control their
5 energy costs through energy efficiency measures. And it appears that to date MGE has made
6 no attempt to survey or otherwise gauge its customer's reactions to its proposal. For
7 example, in its response to the City of Madison's request No. 10 (attached hereto as *Ex.-*
8 *NRDC-Morgan-2*), MGE indicates that it "does not have in its possession information
9 regarding public reactions to increase of the monthly residential and/or small commercial
10 customer charge."

11 If MGE intends to move forward with its current basis for altering residential and small
12 commercial rate design, I recommend it be done in a more collaborative, open process in
13 which the Commission and stakeholders could take the time necessary to identify,
14 understand, and consider the customer-oriented drivers *before* making drastic rate design
15 changes.

16 **Q. In your opinion is MGE experiencing a "death spiral"?**

17 A. No, I can find no evidence that MGE is experiencing this and its application on this docket
18 contains no such evidence. While there are many ways to articulate a "death spiral" in the
19 utility context, the basic logic is that as more customers adopt distributed generation,
20 utilities' costs to maintain and operate the grid must be spread across a smaller customer
21 base, raising rates and increasing the economic incentive to "cut the cord." But I do not see
22 in this case evidence of the kind of revenue erosion that would be hastened by – and would
23 further hasten – a "death spiral." As I discuss in Section III below, MGE's recent financial

1 results have been robust.

2 **Q. Would you please summarize your reasons for making the second recommendation?**

3 A. The lack of urgency to address financial concerns in MGE's application, and the fact that
4 MGE's proposal does not satisfactorily address the identified customer-oriented objectives,
5 leads me to my second recommendation. I conclude that there are a host of other options
6 (such as revenue decoupling, inverted block rates, and minimum bills, just to name a few)
7 that the utility has not yet considered. If MGE's goal (as it implies in its application) is to
8 develop a rate structure that both allows it to recover its costs of service, while continuing to
9 send the kind of price signal that encourages the efficient use of energy and allows customers
10 the option to invest in a distributed generation systems, then the current proposal is simply
11 insufficient. Thus, I recommend that the Commission convene a process during which MGE
12 and the other investor-owned utilities with similar cases pending before this Commission
13 work on a set of procedural and substantive guidelines for rate design proposals for 2016 and
14 beyond. It is becoming increasingly important to design the kind of rates that are nimble
15 enough to respond to the rapidly-changing marketplace. Thus, this case provides a timely
16 opportunity for the Commission to begin formulating its requirements for the range of rate
17 design proposals that will come before it in the coming years. In my opinion, it would
18 behoove Wisconsin to get out ahead of future problems in the utility regulatory space.

19 **Q. How is your testimony organized?**

20 A. My testimony has four sections in addition to this introductory portion.

21 In Section III, I review the typical utility-oriented reasons for rate design change that
22 revolve around financial need. MGE has presented no evidence of such need and I could
23 find none in a review of common sources one would look to for information concerning a

1 utility's financial health.

2 In Section IV, I identify the well-established considerations that go into rate design
3 decisions, some of which MGE offers (though I disagree with the way in which they were
4 applied). The bulk of these relate to customer-oriented objectives for addressing rate design,
5 such as providing bill stability, removing customer confusion, and sending "economically
6 efficient" price signals to motivate customers to make sound decisions about the way they
7 use their energy. While these are all valid objectives to improve the ways in which
8 customers consume energy and interact with their utility, MGE's proposal does not further
9 them and in fact would remove customers' ability to meaningfully impact the ways in which
10 they make energy consumption decisions.

11 In Section V, I identify some of the key questions MGE and others should address and
12 specific work it should do before returning to the Commission with any further rate design
13 proposals. These questions and work relate not only to the well-established considerations
14 that go into rate design, but the broader – and very dynamic – market, social and cultural
15 environment in which electric utility rate designs influence customers' decisions.

16 Section VI concludes my testimony and includes a thorough description of my
17 recommendations for Commission action to guide the development of rate design proposals
18 for this (and future) cases.

19 **III. UTILITY-ORIENTED CONSIDERATIONS FOR MGE'S PROPOSAL**

20 **Q. Does MGE's proposal to increase fixed customer charges appear to revolve around**
21 **utility-oriented (i.e. financial) concerns?**

22 A. No. MGE makes no claim in its application or supporting testimony that it is experiencing
23 financial difficulty, or is otherwise vulnerable to revenue instability or erosion.

1 **Q. With respect to MGE's electric side, what materials did you review and what were your**
2 **conclusions?**

3 A. I reviewed a combination of MGE's discovery responses in this case and reports that the
4 utility filed with the Commission.

5 First, MGE's annual reports to the Commission from 2004 through 2014 reveal no
6 immediate financial need. Attached hereto as *Ex.-NRDC-Morgan-3* is MGE's response to
7 NRDC's discovery request No. 9, in which the utility indicates that its annual sales and
8 revenues can be found in its annual reports.¹³ Excerpts of these reports in this 10-year period
9 are attached hereto as *Ex.-NRDC-Morgan-4*. On review, it appears that MGE's electricity
10 side experienced steady revenue and net income growth in all of the last ten years except
11 2008 and 2009.¹⁴ Even in 2008, revenue rose over the prior year (although net income did
12 not). Indeed, over this period, MGE's electric revenue rose over 50% and its net income
13 over 100%.¹⁵

14 Second, I reviewed MGE's test year forecast sales/revenues for each year since 2007,
15 which MGE provided in response to NRDC's discovery request No. 8 (attached hereto as
16 *Ex.-NRDC-Morgan-5*). A comparison of these forecasted revenues to MGE's actual
17 revenues¹⁶ reveals that the utility exceeded the test year forecast in five or the last seven
18 years¹⁷ and that actual total retail revenues exceeded test year forecast retail revenues in four
19 of the last seven years. There can be little basis to claim revenue instability or erosion under
20 these circumstances.

21 **Q. Did you also review materials concerning MGE's gas arm, and if so what are your**

¹³ See *Ex.-NRDC-Morgan-3*.

¹⁴ See *Ex.-NRDC-Morgan-4*.

¹⁵ *Id.*

¹⁶ See *Ex.-NRDC-Morgan-4* and *Ex.-NRDC-Morgan-5*.

¹⁷ *Id.* 2008 and 2009 were the only years in which MGE under-recovered its forecasted revenues.

1 **findings?**

2 A. Yes. Similar to my review of materials for electric, I also reviewed the sections of MGE's
3 annual reports referring to the gas sector of the utility.

4 The picture over the last ten years is somewhat different on the natural gas side of MGE.
5 The effect of weather is much more apparent, with year-to-year swings of \$10 to \$20 million
6 not uncommon.¹⁸ Moreover, it appears that revenues took a significant step down in 2010
7 and have not returned to prior levels. But the annual reports, of course, do not explain what
8 is happening; they merely provide the data. It is possible, though, that MGE is experiencing
9 some revenue instability and erosion on its natural gas side.

10 **Q. Based on this review, do you believe that increasing customer charges is the best**
11 **response to any revenue instability associated with natural gas service?**

12 A. No. As eluded to earlier in my testimony, the better – and far more common – regulatory
13 response would be a revenue decoupling mechanism. In 2012-2013, I did a comprehensive
14 study of decoupling mechanisms across the United States, which is attached hereto as *Ex.-*
15 *NRDC-Morgan-6*. Half the states have adopted such mechanisms for at least one electric
16 and/or gas utility, and, in total, 51 electric utilities and 28 natural gas utilities have
17 decoupling.¹⁹ The aim in every case has been to prevent unexpected fluctuations in
18 utilities' energy sales from affecting their recovery of authorized fixed costs between rate
19 cases.

¹⁸ See *Ex.-NRDC-Morgan-4*.

¹⁹ See *Ex.-NRDC-Morgan-6*, attached hereto, Pamela Morgan, *A Decade of Decoupling for U.S. Energy Utilities: Rate Impacts, Designs and Observations* (May 2013), at 3-4. Since the publication of the Morgan study, the Washington Utilities and Transportation Commission has approved decoupling for the electric and natural gas operations of Puget Sound Energy. Washington UTC, Dockets UE-121697 & UG-121705, Order 07 (June 25, 2013). The totals cited in the text of this testimony reflect this recent decision.

1 **Q. Is revenue instability the only reason Commissions have approved decoupling**
2 **mechanisms, for either natural gas or electric utilities?**

3 A. No. In many cases, the mechanisms also serve to remove the utility's disincentive to actively
4 and aggressively promote conservation and energy efficiency investments by its customers,
5 whether or not the utility or a third-party administrator runs these programs.²⁰ Decoupling
6 mechanisms are uniquely useful for this purpose because they break the link between sales
7 and revenues for the utility without affecting the underlying rate design, and – unlike with a
8 fixed charge increase – without deadening the conservation signal in current rates. And
9 decoupling mechanisms are just as appropriate for the electric arm of a utility as for its
10 natural gas side. As indicated above, in total 51 electric utilities have decoupling, which
11 reflects additional mechanisms approved since the publication of my study.²¹ This includes
12 quite a few vertically-integrated utilities.

13 **Q. Are you recommending that the Commission order decoupling for MGE in place of**
14 **approving the proposed fixed charge increases?**

15 A. Given the lack of urgency in MGE's application to address financial reasons for rate design
16 changes, it is not necessary to develop a decoupling mechanism at this stage. But
17 stakeholders can consider the role decoupling could play as part of the broader consideration
18 of services and rate design that I propose in Section V below.

²⁰ MGE indicates in response to NRDC's discovery requests that in Wisconsin energy efficiency programs are administered through the third-party administered *Focus on Energy* program (see Supplemental Response to NRDC-1, attached hereto as *Ex.-NRDC-Morgan-7*). This does not render MGE inappropriate for a decoupling mechanism, however. For example, the Energy Trust of Oregon administers the natural gas energy efficiency programs offered in Northwest Natural Gas Company's services territory but the utility has had a commission-approved decoupling mechanism in place for over ten years. Portland General Electric Company, an investor-owned, vertically integrated electric utility in Oregon also has decoupling even though the Energy Trust administers programs for its customers.

²¹ See *Ex.-NRDC-Morgan-6*.

1 **Q. Please summarize your findings with respect to the financial context for MGE's**
2 **proposal.**

3 A. In sum, the lack of any financial urgency in MGE's application means the Commission has
4 no substantive basis upon which to approve the proposed changes to fixed customer charges
5 in this case. This lack of urgency actually gives the Commission the luxury of time in which
6 to address the larger issues implicated herein. At the very least, given MGE's statement that
7 its 2016 and 2017 proposals are merely suspended, and the likelihood that another rate case
8 will be filed next year on similar issues as are arising in this docket, I recommend that the
9 Commission develop a process to address the entire period from 2015-2017 (and for future
10 years) before making a decision on 2015. This would allow the parties and other
11 stakeholders the opportunity to develop a full record and address a host of alternative
12 mechanisms to the one proposed by MGE that may yield more palatable results for both the
13 utility and customers. I describe ways in which the Commission could begin to pursue the
14 procedural and substantive steps to developing such a record in Section V below.

15 **IV. CUSTOMER-ORIENTED CONSIDERATIONS FOR MGE'S PROPOSAL**

16 **Q. Does MGE's proposal to increase fixed customer charges appear to revolve around**
17 **customer-oriented objectives?**

18 A. Yes, it would appear so. As I address in this section, the main reasons that MGE provides for
19 its dramatic proposal to increase fixed charges fall largely within the category of customer-
20 oriented considerations, even though I disagree with how MGE has applied them.

21 **Q. What are the main customer-oriented objectives that MGE states that it is seeking to**
22 **address through its proposal?**

1 A. Witness Bollom lays out these reasons in detail, of which there are four:²² 1) its desire to
2 send “economically efficient” price signals to customers; 2) difficulty sustaining MGE’s rate
3 structures in the current regulatory market; 3) confusion on the part of customers who take
4 part in energy efficiency; and 4) the “need” to align rates and costs to address increased
5 numbers of distributed generation customers in MGE’s service territory.

6 I will review each of these in turn, but first I lay out the common principles that are
7 considered in rate design, many of which this Commission has recently emphasized in
8 MGE’s prior rate cases.

9 **A. Rate Design Principles and Their Impact on Customers**

10 **Q. As a preliminary matter, what is “rate design”?**

11 A. First, I would like to point out that “rate design” is different than “rate spread.” Rate spread
12 is the set of procedures followed and considerations applied to allocate an approved revenue
13 requirement among customer classes, i.e. to determine which classes should pay for what. In
14 contrast, “rate design” is the determination of how to charge specific customers for service
15 under a utility rate schedule. Although it is possible to conclude that everyone on a specific
16 rate schedule is similarly situated – this is not necessarily true. What service each customer
17 takes from the system in terms of energy (kWh) and asks of it in terms of demand (kW) may
18 be different. And what gets measured and paid for can have implications for customer’s
19 decisions on how they use their energy.

20 **Q. With that background, what are the traditional considerations for utility rate design?**

21 A. The classic guide on rate design to which I have turned throughout my career, and to which
22 the vast majority of participants in utility rate matters refer, is the *Principles of Public Utility*
23 *Rates*, by James C. Bonbright. In various editions, he describes a common set of key

²² Bollom Direct at 12 (PSC REF#: 205588).

1 considerations. The ones I find applicable here are the following, paraphrased in my own
2 words (relevant excerpts of the Bonbright text are attached hereto as *Ex.-NRDC-Morgan-8*):

- 3 1. Quality of the price signal concerning the near, medium and long-term cost of using
4 electricity, including: from an aggregate perspective, all present and future private
5 and social costs occasioned by that use; and from an individual customer perspective,
6 the absolute size, timing and variability of that use.
- 7 2. Stability and predictability in revenues from the utility's perspective, while avoiding
8 socially undesirable rate base expansion or levels of product quality or safety.
- 9 3. Stability and predictability in bills, and in the rates themselves, with a minimum of
10 unexpected changes seriously adverse to customers and a sense of historical
11 continuity.
- 12 4. Fairness between broad groupings of customers (classes) and within a given customer
13 grouping (a rate schedule), such that similarly-situated customers have a similar
14 experience.
- 15 5. Efficiency in promoting innovation and economic responses as patterns of supply and
16 demand, energy-using technologies, and energy end-user behaviors (aided by
17 technology or not) change over time.
- 18 6. Avoidance, as possible, of subsidies or inter-customer burdens.

19 As sound as these considerations are, even Professor Bonbright understood that they do not
20 definitely determine how much a utility should charge and for which services, nor do they
21 answer yet another question: *what are we trying to accomplish?* I find Bonbright's quote
22 particularly pertinent to the issues here:

23 [R]ate-structure problems are far more complex than problems of a fair return
24 even though the latter are by no means elementary; and they are even less

1 amenable to solution by reference to definite principles or rules of rate
2 making. . . . In part it is due to the inability of the rate maker to predict the
3 effect of changes in rates on demand for the services and hence on costs of
4 supply – due, in short, to ignorance of demand functions and cost functions.
5 But in part – and this is the most serious theoretical difficulty – it is due to the
6 necessity, faced alike by public utility managements and by regulating
7 agencies, of taking into account numerous conflicting standards of fairness
8 and functional efficiency in the choice of a rate structure. . . . *No rational*
9 *discussion, . . . , of the relative merits of ‘cost of service’ and ‘value of service’*
10 *as measures of proper rates or rate relationships is possible without reference*
11 *to the question what desirable results the rate maker hopes to secure, and*
12 *what undesirable results he hopes to minimize*²³
13

14 Ideally, the goals of a particular rate design decision should relate to how the design will
15 affect customer choices and behavior and how those, in turn, will affect what the utility
16 invests and spends on providing its services. MGE has provided little information that would
17 help the Commission set such goals here and make a decision that will further them.

18 **Q. Does it appear that the Commission has followed these traditional principles in making**
19 **rate design decisions in the past?**

20 A. Yes. In my review of prior decisions on MGE’s rate cases, I find that the Commission has
21 made numerous references to the quality of price signals, utility revenue stability, bill
22 impacts and stability, and fairness between customers. For example:

- 23 • In 3270-UR-115, the Commission references bill impacts, one or more cost of service
24 studies, and price signals as rate design considerations it applied in approving
25 residential natural gas customer charge increases of just \$0.75/month and electric Rg-
26 1 and Cg-5 charges of just \$0.30/month. In that case, the Commission also accepted a
27 proposal from CUB to work collaboratively with MGE on innovative rate options that
28 would promote energy conservation.²⁴

²³ Principles of Public Utility Rates, James C. Bonbright, Columbia University Press, New York, 1961, pages 288-290 (emphasis added).

²⁴ See Docket 3270-UR-115, Final Decision, December 18, 2008, pages 12, 19, and 33.

- 1 • In 3270-UR-116, the Commission added several more factors to this list of
2 considerations: established rate relationships, impacts for both high and low energy
3 use customers of all classes, the relationship of tariff charges to marginal energy cost,
4 and rate comparability with other utilities.²⁵ Deciding to maintain all customer
5 charges at their current levels, the Commission explained:

6 It is clear that energy efficiency and demand response initiatives will play an
7 increasingly important role in the future as emissions of carbon dioxide that result
8 from the production of electricity are restricted. It is important to send price
9 signals to consumers that electric energy will be relatively more expensive in the
10 future due to restrictions on these emissions. One way of sending this price signal
11 to customers is to approve electric rate designs in this proceeding in which a
12 relatively greater proportion of increases in revenue are collected through
13 increases in energy charges as opposed to increases in monthly customer charges
14 and demand charges.²⁶

- 15
16 • In 3270-UR-117, the Commission rejected a proposed \$0.24/month increase in the
17 gas residential customer charge because it would have been the highest level of any
18 such charge the Commission had approved to date and because of the adverse effect
19 of the increase on energy efficiency. The Commission stated that “increasing the
20 fixed portion of the bill decreases the amount of savings that customers can
21 experience due to using less gas, which reduces a residential customer’s financial
22 incentive to conserve energy and install energy efficiency measures.”²⁷

23 **B. Analysis of MGE’s Stated Rate Design Objectives**

24 **Q. As a threshold matter, what is your opinion of MGE’s reliance on its cost of service**
25 **study in developing its proposal?**

26 A. In developing the proposed increases in fixed customer charges it appears that MGE
27 primarily considered the results of its embedded cost of service study, which it designates as

²⁵ See Docket 3270-UR-116, Final Decision, December 22, 2009, page 39.

²⁶ *Id.*, pages 40-41.

²⁷ See Docket 3270-UR-117, Final Decision, January 21, 2011, pages 40-41.

1 “the actual costs of service.”²⁸ It proposes to design the recovery of costs it has designated as
2 “fixed” into the fixed customer charge. The 2016 and 2017 proposals that MGE suspended
3 for a later case placed costs that it designated as “demand” into a demand charge (which was
4 essentially fixed because of the lack of demand meters for these customer classes) and only
5 costs it labeled as variable – primarily fuel for generation or delivery losses – into a usage-
6 based charge.²⁹

7 **Q. What is your opinion of this justification for the proposed dramatic increase in**
8 **customer charges?**

9 A. In my opinion, the nature of costs in an embedded cost of service study as “fixed” or
10 “variable” and the economic efficiency that will supposedly result from designing prices on
11 this basis provide no support for the changes. If rate design was this simple – designating
12 fixed costs in fixed charges and variable costs in variable charges – we would have seen a lot
13 more of this rate design over the many decades of electricity and natural gas service. Clearly,
14 as Bonbright’s list above indicates, other considerations have played a much larger role and
15 deserve attention.

16 **Q. Are fixed costs really fixed?**

17 A. No, the designation “fixed” simply refers to the cost changes outside of a period of time that
18 the person using the term has in mind. This could mean a quarter, a year, a decade, or longer.

19 For utilities, fixed costs fall into two major categories: operations and maintenance costs
20 (O&M) and capital costs – return of, and on, capital. O&M is primarily within the control of
21 the utility, provided it meets whatever standards of service exist. It is changeable in periods
22 of time from days to years, although significant reductions in O&M usually take several

²⁸ Bollom Direct at 2, 5 (PSC REF#: 205588).

²⁹ James Direct (PSC REF#: 205589).

1 years because the utility must figure out how to do things differently – re-do process and
2 perhaps even work with regulators and stakeholders on what it must do – rather than just trim
3 budgets.

4 It is less simple to assign accountability for managing return of, and on, capital. Utilities
5 typically have the final decision whether to make an investment or not, but those decisions
6 are highly influenced by the expectations of important stakeholders (i.e. the Commission,
7 other regulatory stakeholders, commitments to third parties such as MISO, and the utility's
8 investors), and even the politics of the state. Once investments are made and in service, the
9 Commission shares responsibility for their "fixed" nature in setting the depreciation rate on
10 the investment. For decades, it has been generally safe to assume that useful life for
11 depreciation purposes is the same as physical life of utility assets. But this may no longer be
12 the case, particularly for generating investments. Nonetheless, these costs are truly variable
13 over time. Whether assets reach the end of their physical or economic life, the "fixed costs"
14 represented in those assets are then gone and new decisions have to be made.

15 **Q. Now please turn to the four main objectives that MGE states it is addressing via its**
16 **proposal. How do you respond to MGE's first objective, to send "economically**
17 **efficient" price signals that accurately match the cost to serve customers?**

18 A. In MGE's opinion, customers will make better choices if the costs they pay or the benefits
19 they receive from increasing or decreasing energy use match precisely the resulting changes
20 in costs to the utility.³⁰ I would note that this "avoided" cost is strictly short-run variable
21 cost; i.e., within the period over which MGE makes fuel and purchased power
22 purchases/sales.

³⁰ Bollom Direct at 13 (PSC REF#: 205588).

1 But, more importantly, MGE does not define what it means by “economic efficiency.”
2 Its focus on load factor as the most important driver of the costs of providing service suggests
3 that it would consider a rising load factor “economic efficiency,” regardless of whether the
4 reasons for that load factor increase.

5 **Q. How do you respond to MGE’s second statement, that its current rate design puts it at a**
6 **competitive disadvantage?**

7 A. Witness Bollom states that MGE has a competitive disadvantage to states that have
8 unbundled and restructured their electric utility sectors and have rate structures that better
9 align costs and revenue recovery, without cross-subsidization between delivery and supply
10 activities.³¹ But he does not identify the nature of this claimed disadvantage, nor which
11 specific restructured states MGE is concerned about. At any rate, given MGE’s reference to
12 economic development in the context of industrial customers, it is unlikely that this
13 competition concern relates to the residential and small commercial rate design changes.

14 **Q. MGE’s states that its third objective is to address customer conservation, that the**
15 **current relationship between rates and costs creates confusion for customers that invest**
16 **in energy efficiency.**³² **Do you agree?**

17 A. No. I can find no support for MGE’s key assumption here: that customer rates have gone up
18 as a result of conservation.³³ The utility’s last three 10-K reports list the reasons for recent
19 rate increases as: electric fuel and purchased power costs; transmission costs and reliability
20 enhancements; Elm Road units’ costs; energy efficiency program costs; and new

³¹ *Id.* at 13-14.

³² Bollom Direct at 14-15 (PSC REF#: 205588).

³³ *Id.*

1 environmental equipment at Columbia.³⁴ To the extent these reports discuss changes to
2 sales, the reason identified is primarily year-over-year seasonal weather deviations.

3 It is also unclear clear how MGE reached the conclusion that its recent rate increases
4 have caused customer confusion about the benefits of conservation.³⁵ And with respect to
5 Witness Bollom's concern that customers are not "seeing" their savings,³⁶ this is more likely
6 the result of weather-related changes for the residential and small commercial rate classes
7 that make it difficult to discern any patterns in bills. It would be easier for these customers to
8 see whether investments or behavior changes they made had a difference if MGE provided
9 them weather-adjusted usage amounts in addition to the meter usage.

10 **Q. How do you respond to MGE's parallel assertion that customer bills will be more stable**
11 **under the proposed rate design?**³⁷

12 A. I do not agree. Customers who truly desire a stable bill across the year can choose that option
13 from MGE and, indeed, over 10% have apparently done so. For example, MGE indicated in
14 response to City of Madison's request number 40 (attached to hereto as *Ex.-NRDC-Morgan-*
15 *9*) that 11.1% of MGE's residential customers are on a budget billing plan.

16 But if bill stability is truly a concern, in my opinion the best way to ensure that weather
17 does not cause over or under-recovery is a revenue decoupling mechanism. If designed
18 appropriately it would remove any disincentive the utility may have to promote energy

³⁴ See landing page for reports at <http://www.mgeenergy.com/reports/10k.htm>. Specifically, MGE's 2013 10-K report is available at http://www.mgeenergy.com/reports/html/10k_2013.htm; its 2012 10-K report is available at http://www.mgeenergy.com/reports/html/10k_2012.htm; and its 2011 10-K report is available at http://www.mgeenergy.com/reports/html/10k_2012.htm.

³⁵ Bollom Direct at 14-15 (PSC REF#: 205588).

³⁶ *Id.* at 15.

³⁷ Bollom Direct at 16-17 (PSC REF#: 205588).

1 efficiency, while simultaneously removing the impacts of fluctuations in customer bills as a
2 result of weather.³⁸

3 **Q. But isn't sending the appropriate price signal key to MGE's stated objective of**
4 **motivating customers to conserve energy and thus control their bills?**³⁹

5 A. Yes, it is. But (as articulated in more detail below) MGE's proposal does not satisfy that
6 objective. In my opinion, one of Bonbright's most important rate design considerations is the
7 quality of the price signals the rates send to residential and small commercial customers and
8 the corresponding impacts on customer behavior. This is one of the considerations to which
9 the Commission should give the greatest weight.⁴⁰

10 **Q. Why are price signals and their effect on energy efficiency and renewable distributed**
11 **generation decisions such important considerations for the Commission?**

12 A. The first, and foremost, reason is that Wisconsin's statutory and regulatory construct clearly
13 expresses the importance of energy efficiency and renewable energy and strong price signals
14 to future – not past and embedded – costs of electricity and natural gas. These considerations
15 are critical to customers' willingness to make conservation decisions. As articulated in Wis.
16 Stat. § 196.025, "[c]onsideration of the maximum conservation of energy resources" is an
17 important factor the Commission must consider when making any major decision that would
18 significantly affect energy usage. Its statutory charge is to implement the priorities of
19 Wisconsin's State Energy Policy, to the extent cost effective, technically feasible, and
20 environmentally sound, and to prioritize energy efficiency, conservation, and renewable
21 resources above all other resource options.

³⁸ See, generally, *Ex.-NRDC-Morgan-6*.

³⁹ Bollom Direct at 14 (PSC REF#: 205588).

⁴⁰ The other Bonbright consideration that I consider most important for the Commission to consider is maintaining a sense of historical continuity in the rate design experienced by these residential and small commercial electricity and natural gas customers. I describe that below.

1 Consistent with this statutory charge, the Commission's 2011-2013 Biennial Report
2 noted the success of Wisconsin's energy efficiency efforts to date, with the *Focus on Energy*-
3 led programs yielding twice as many benefits as costs.⁴¹ In the 2009-2011 Biennial Report,
4 the Commission summarized the findings from its 2016 Strategic Energy Assessment (SEA)
5 that: "[e]nergy conservation and efficiency will play an increasing role in the industry."⁴²
6 This SEA referenced the 2009 energy efficiency and renewable energy potential study done
7 for Wisconsin that found annual cost-effective savings opportunities of 1.6% of energy used,
8 a potential rate more than double the then-current annual savings rate of 0.6%. Both the
9 2016 SEA⁴³ and 2018 SEA⁴⁴ also noted the importance of energy efficiency in helping
10 proactive customers mitigate the bill impacts of the frequent energy rate increases in
11 Wisconsin.

12 Energy efficiency and renewable distributed generation are long-term investments. The
13 costs are up-front; the benefits to the investor, to the utility's customer base, and to the state
14 are long-term, appearing as bills are lower, utility investments are avoided and emissions
15 reduced. Unlike embedded electricity and natural gas service rate base investments, which
16 are depreciating and declining over time, few would suggest that the long-term cost of
17 producing either is declining. Utility prices should signal to customers that using more
18 energy will, sooner or later, cost more. Instead, MGE's proposal sends an all-you-can-eat
19 price signal that does customers a disservice and undercuts the true value of energy
20 efficiency investments.

⁴¹ See page 4, <http://psc.wi.gov/aboutus/pscreports/documents/biennialReport11-13.pdf>

⁴² See 2011-2013 Biennial Report, page 5, available at
<http://psc.wi.gov/aboutus/pscreports/documents/2009-2011.pdf>

⁴³ See Docket 5-ES-106, 2018 SEA, available at
http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=145514.

⁴⁴ See Docket 5-ES-105, 2016 SEA, available at
http://psc.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=176432.

1 **Q. MGE indicates that its proposal is designed to send an efficient price signal to**
2 **customers.⁴⁵ Do you agree?**

3 A. No. The proposed increases, if approved, would actually do just the opposite, adversely
4 interfering with Wisconsin's energy efficiency success. Contrary to MGE's assertions,
5 shifting costs from variable, kilowatt-hour charges to the fixed customer charge lessens
6 benefits by reducing customers' ability to save on their bills by conserving electricity. As a
7 result, customers deciding to participate in the programs will see less upfront benefit from the
8 investments they make. Their monthly bill savings will be smaller and it will take longer for
9 them to recoup the upfront costs of energy efficiency investments.

10 Shifting cost recovery from variable energy costs – whether electricity or natural gas –
11 into customer or fixed charges will lengthen payback periods and that will reduce interest in
12 energy efficiency programs. By way of illustration, in a recent energy efficiency potential
13 study a utility extensively reviewed customers' attitudes towards energy efficiency programs.
14 Among the key results were estimated "take-rates" for various program concepts. The
15 variable used to express differences in take-rates was the payback period. At a one-year
16 payback, 45% of residential customers stated that they would participate in a high-efficiency
17 refrigerator incentive program; that participation dropped to 21% at a five-year payback. An
18 excerpt of this study is attached hereto as *Ex.-NRDC-Morgan-10*.⁴⁶

19 **Q. Didn't MGE present two examples that purport to show that its rate design proposals**
20 **would have little effect on energy efficiency savings for residential customers?**

⁴⁵ Bollom Direct, 13-15 (PSC REF#: 205588).

⁴⁶ See *Ex.-NRDC-Morgan-10*, attached hereto, AmerenUE Demand Side Management (DSM) Market Potential Study Volume 1: Executive Summary, Global Energy Partners, LLC. Walnut Creek, CA. 2010. 1287-1, 22-24.

1 A. Yes. Witness Bollom provides two such examples, stating that: 1) a customer that replaces a
2 single 75 watt incandescent light bulb in a high usage location with a new 26 watt LED bulb
3 will still save money under MGE's proposed rate design; and 2) a customer that replaces its
4 current SEER 10 central air conditioning unit with a more efficient SEER 16 unit will save
5 more under the proposed design than the present rates.⁴⁷

6 But these examples should provide the Commission little comfort, as they were prepared
7 with assumptions that are no longer before the Commission. Specifically, at the time
8 Witness Bollom prepared these examples, the demand-based charges MGE initially proposed
9 were in effect, the customer had a meter capable of measuring changes in demand, and the
10 measures reduced the customer's peak demand, resulting in lowering both kWh- and kW-
11 based variable charges. In contrast, the fixed and customer charges in the rate design
12 proposal now at issue are unavoidable. Customers must pay the grid connection fee and
13 customer charge, month after month, regardless of whether they invest in energy efficiency
14 or how their usage changes.

15 **Q. Did you prepare an alternate example of the effect of the residential fixed charge**
16 **increase on the payback period for a common energy efficiency investment?**

17 A. Yes. I looked at the payback period for an energy efficiency clothes washer that an Rg-1
18 customer could expect with the proposed rate design change. Specifically, I reviewed three
19 scenarios: 1) the payback period assuming the present rate design remains in place, with no
20 increase in the revenue requirement; 2) assuming MGE's requested rate design is approved
21 (both the fixed customer charge request for the Rg-1 class and the requested increased
22 revenue requirement); and 3) assuming the Commission denied the requested rate design
23 change to fixed charges, but still approved the increased revenue requirement. For each of

⁴⁷ See Bollom Direct at 18-20 (PSC REF#: 205588).

these scenarios I assumed that a more efficient clothes washer saves about 122 kWh a year.

The higher efficiency usually has an incremental cost of about \$235 and rebates in the range of \$50 are common.

As Table 1 below illustrates, under the current rate design it would take a customer about 10 years to re-coup his or her up-front investment in the clothes washer. If MGE's new rate design is approved in its entirety, with an additional \$9/month of unavoidable cost, that payback period increases by at least another year. My full set of calculations, including what the new rate would be if the Commission approved MGE's requested increase, are attached hereto as *Ex.-NRDC-Morgan-11*.

Table 1: Calculation of Payback Period for New Energy-Efficient Clothes Washer

<i>Description of Process</i>		<i>Present Rate Design</i>		<i>New Rate Design</i>		<i>Present Rate Design with Increased Revenue Requirement</i>	
Step 1	Multiply Winter kWh rate by number of Winter months	0.139 92*8=	1.1193 6	.12986*8=	1.03888	.14548*8=	1.16384
Step 2	Multiply Summer kWh rate by number of Summer months	0.152 22*4=	.60888	.14086*4=	0.56344	.15648*4=	0.62592
Step 3	Calculate average annual rate (add steps 1 and 2, divide by 12 months) (\$/kWh)	1.728 24/12 =	0.1440 2	1.60232/12=	0.13352 7	1.78976/12=	0.14914 7
Step 4	Calculate annual bill savings (assuming annual savings is 122 kWh) (\$)	122*. 14402 =	17.57	122*.133527 =	16.29	122*.149147 =	18.20
Step 5	Calculate Payback (assuming incremental cost to recover is \$185) (in years)	185/1 7.57=	10.53	185/16.29=	11.36	185/18.20=	10.17
Years to Payback		10.53 years		11.36 years		10.17 years	

1 **Q. Please now respond to MGE's fourth objective for its proposal, that it is seeking to**
2 **ensure customers make decisions about distributed generation based on the "real**
3 **economics."**⁴⁸

4 A. I disagree with MGE's assertion to this effect. I'm not sure to what "real economics" MGE
5 is referring but it is not the economics widely used in the utility regulatory world regarding
6 energy efficiency and distributed generation. While MGE specifically refers to distributed
7 generation in this section, implicitly they seem to also have the same concern with respect to
8 energy efficiency.

9 The gap between MGE's "real economics" and economic theory widely used is easiest to
10 see with respect to energy efficiency. The reason why Wisconsin's *Focus on Energy*
11 program exists, and why virtually every other state/utility provides utility customers access to
12 energy efficiency programs, is that these investments provide benefits to every energy utility
13 customer, not just those making the investment. These "system benefits" are present in
14 avoided future costs and even in near-term costs mitigated by reductions in demand on the
15 market price of fuels.

16 Perhaps MGE does not believe that all energy utility customers benefit from energy
17 efficiency. In its testimony in the 3270-UR-118 docket, MGE suggested that revenues lost
18 because of a customer's investment in a more efficient air conditioner are "appropriately"
19 allocated to that customer and should result in a 3% rate increase for that customer.⁴⁹
20 Certainly MGE's initial rate design proposals in this case would have reached this result by
21 ensuring that the customer considering energy efficiency experienced benefitted only to the
22 extent of actual fuel cost savings. Of course, it is not clear that customers would have, in

⁴⁸ Bollom Direct at 12, 20-24 (PSC REF#: 205588).

⁴⁹ See 3270-UR-118, Direct Testimony of Greg Bollom on Behalf of MGE.

1 fact, made an investment in energy efficiency under those circumstances. But the
2 Commission's most recent Biennial Report highlighted an Audit Bureau finding in December
3 2011 that the benefits of Wisconsin's *Focus on Energy* program are more than twice its
4 costs.⁵⁰ It is doubtful this report is referring to the fuel cost savings associated with these
5 energy efficiency investments.

6 Distributed generation also produces benefits for all energy utility customers. Numerous
7 recent studies have reached this conclusion.⁵¹

8 **Q. Have you done any analyses responding to MGE's concern that distributed generation**
9 **customers are not paying their fair share of infrastructure costs?**⁵²

10 A. Yes I have, and my review of the utility's distributed generation customer accounts reveals
11 otherwise. In response to NRDC's discovery request No. 4 and City of Madison's request
12 No. 1, MGE provided information on the number of customer counts attributed to distributed
13 generation customers in 2013. These responses are attached hereto as *Ex.-NRDC-Morgan-*
14 *12*. As Table 2 below illustrates, these customers appear to be fairly evenly distributed
15 across the various ranges within which MGE does bill frequency distributions. Assuming
16 one should totally ignore the aforementioned benefits of distributed generation to other
17 customers, it would appear these customers are neither subsidizing nor being subsidized by

⁵⁰ See 2011-2013 Biennial Report, page 4, available at
<http://psc.wi.gov/aboutus/pscreports/documents/biennialReport11-13.pdf>.

⁵¹ See Xcel Energy for Public Service Company of Colorado, 2013. Costs and Benefits of Distributed Solar Generation on the Public Service Company of Colorado System – finding total net benefits of 8.6 cents/kWh; see also Crossborder Energy, 2013, The Benefits and Costs of Solar Distributed Generation for Arizona Public Service – finding total net benefits of 6.67 cents/kWh; Lawrence Berkeley National Lab, 2012, Changes in the Economic Value of Variable Generation at High Penetration Levels: A pilot Case Study of California – benefit of 5.91 cents/kWh; Clean Power Research, 2012, The Value of Distributed Solar Electric Generation to New Jersey and Pennsylvania – value of 24.9 cents/kWh; Utah Public Service Commission, Docket 13-035-184, Rocky Mountain Power (rejecting the utility's proposed \$4.65/month grid connection fee for residential customers with solar panels).

⁵² Bolloom Direct at 21 (PSC REF#: 205588).

other customers. Their usage variations fall into the same ranges as other Rg-1 customers in about the same percentages.

Table 2: Proportion of distributed generation customer accounts in Rg-1

2013 Annual kWh	2013 No. Residential Accounts	2013 No. Residential Accounts with DG	Percent of accounts
0	540		
12 – 600	2,641	5	0.19
600 – 1200	5,478	6	0.11
1200 – 1800	7,621	7	0.09
1800 – 2400	8,457	18	0.21
2400 – 3000	8,491	15	0.18
3000 - 3600	8,310	8	0.10
3600 - 4200	7,914	10	0.13
4200 - 4800	7,553	20	0.26
4800 - 5400	7,139	18	0.25
5400 - 6000	6,694	12	0.18
6000 - 6600	6,137	12	0.20
6600 - 7200	5,638	6	0.11
7200 - 7800	5,129	6	0.12
7800 - 8400	4,585	7	0.15
8400 - 9300	5,964	18	0.30
9300 - 10500	6,322	13	0.21
10500 - 11700	4,892	7	0.14
11700 - 13200	4,432	7	0.16
13200 - 15600	4,480	5	0.11
15600 - 24000	5,312	10	0.19
>24000	1,439	2	0.14

C. Additional Rate Design Considerations Not Included in MGE’s Application

Q. Please now address the other Bonbright rate design considerations that have not yet been considered in your testimony. Should the Commission also give substantial weight to “historical continuity” in MGE’s rate design?

A. Yes. Along with sending the appropriate price signals, designing rates such that they provide a sense of continuity for the customer should be amongst the most important considerations for the Commission in this case.

Rate design for residential and small commercial (non-demand metered) customers has been remarkably stable over the last decade. Although some utilities have put in place inclining block rates, and some have left in place declining block rates, a relatively low customer charge with the remainder of costs incorporated into the variable charge is the norm. As recently as 2007, MGE's electric customer charge for these customers was just \$8.40/month. In 2008, it increased by just \$0.30/month, a little over 3.5%.⁵³ These patterns began to change in 2012, when the customer charge increased by 20%, a fairly significant change.⁵⁴ And now, MGE seeks to layer another 82% change on top of this.

Q. Is MGE's proposed fixed charge increase consistent with this "historical continuity"?

A. No. The results of the proposal on customers will be significant, and a departure from the norm. I conducted a bill frequency analysis using MGE's responses to City of Madison's data request No. 1,⁵⁵ from which I estimated the impact to customers of MGE's proposal across a wide range of energy usage. My analysis paints a more complete picture than the bill comparison chart for customers in the Rg-1 class included in Witness James' testimony.⁵⁶ For ease of reference, I'm including this chart below:

Rg-1 - Residential General Service

Monthly Consumption	Annual Bills		Increase	
	Current Rates	2015 Proposed Rates	Amount	Percent Change
300	\$643.70	\$705.74	\$62.05	9.6%
550	\$1,075.76	\$1,103.82	\$28.07	2.6%
750	\$1,421.40	\$1,422.29	\$0.88	0.1%
1,000	\$1,853.46	\$1,820.37	-\$33.10	-1.8%
1,500	\$2,717.58	\$2,616.53	-\$101.06	-3.7%
2,500	\$4,445.82	\$4,208.85	-\$236.98	-5.3%
4,000	\$7,038.18	\$6,597.33	-\$440.86	-6.3%

⁵³ See Docket 3270-UR-115.

⁵⁴ See Docket 3270-UR-118.

⁵⁵ See *Ex.-NRDC-Morgan-12* attached hereto.

⁵⁶ James Second Supplemental Direct, Exh. 1, Schedule 3 (PSC REF#: 214049).

1 While MGE's chart lists the levels of monthly consumption in kWh, it omits the number of
2 customers at each consumption level. Thus, one cannot tell from this chart alone how many
3 customers will see bill increases or decreases as a result of MGE's proposal.

4 The picture becomes markedly clearer when using an expanded data set. In Table 3
5 below I estimated both the amounts and percentages of increase and the number of customers
6 affected, according to the kWh usage groupings MGE uses. This analysis demonstrates that
7 MGE's proposed fixed charge increase will result in bill increases for almost 80% of MGE's
8 Rg-1 customer base. Breaking this figure down, over one-third of these customers will
9 experience a double-digit rate increase; for almost 9,000 customers, this double-digit increase
10 will exceed 30%. Conversely, and as MGE's chart above shows, decreases of any
11 significance do not occur until a customer's monthly consumption exceeds 1,000 kWh. But
12 what MGE's chart does not convey is the low volume of customers that will enjoy any such
13 decrease; as Table 3 shows, only around 10,000 customers. And the decrease does not reach
14 4% until the last approximately 1,500 customers, all of which fall in the consumption range
15 of over 2,000 kWh a month.

16 These additional increases to both the fixed customer charge, and the total bill, do not
17 provide a sense of historical continuity.

1

Table 3: Bill Comparison Calculations for Residential General Service (Rg-1)

Current Fixed charge	kWh Usage	Current Winter kWh charge	Current Total Bill	New Fixed Charge	New Winter kWh Charge	New Total Bill	Amount Increase	Percent Increase	Customer Count ⁵⁷
10.44	10	0.13992	11.84	19	0.12986	20.30	8.46	0.715	540
10.44	50	0.13992	17.44	19	0.12986	25.49	8.06	0.462	2,641
10.44	100	0.13992	24.43	19	0.12986	31.99	7.55	0.309	5,478
10.44	150	0.13992	31.43	19	0.12986	38.48	7.05	0.224	7,621
10.44	200	0.13992	38.42	19	0.12986	44.97	6.55	0.170	8,457
10.44	250	0.13992	45.42	19	0.12986	51.47	6.05	0.133	8,491
10.44	300	0.13992	52.42	19	0.12986	57.96	5.54	0.106	8,310
10.44	350	0.13992	59.41	19	0.12986	64.45	5.04	0.085	7,914
10.44	400	0.13992	66.41	19	0.12986	70.94	4.54	0.068	7,553
10.44	450	0.13992	73.40	19	0.12986	77.44	4.03	0.055	7,139
10.44	500	0.13992	80.40	19	0.12986	83.93	3.53	0.044	6,694
10.44	550	0.13992	87.40	19	0.12986	90.42	3.03	0.035	6,137
10.44	600	0.13992	94.39	19	0.12986	96.92	2.52	0.027	5,638
10.44	650	0.13992	101.39	19	0.12986	103.41	2.02	0.020	5,129
10.44	700	0.13992	108.38	19	0.12986	109.90	1.52	0.014	4,585
10.44	775	0.13992	118.88	19	0.12986	119.64	0.76	0.006	5,964
10.44	875	0.13992	132.87	19	0.12986	132.63	-0.24	-0.002	6,322
10.44	975	0.13992	146.86	19	0.12986	145.61	-1.25	-0.009	4,892
10.44	1100	0.13992	164.35	19	0.12986	161.85	-2.51	-0.015	4,432
10.44	1300	0.13992	192.34	19	0.12986	187.82	-4.52	-0.023	4,480
10.44	2000	0.13992	290.28	19	0.12986	278.72	-11.56	-0.040	1,439

2

3 Moreover, Table 3 demonstrates that if this proposed rate design change takes effect,
4 customers using relatively less electricity than others within the residential class will
5 experience higher rate increases than customers using relatively more.

6 **Q. Would you comment briefly on the other Bonbright rate spread/design considerations**
7 **you listed and how the Commission should consider them in the context of these**
8 **proposed rate design changes?**

⁵⁷ This Table lists the customer count as an average across the year.

1 A. Yes. I already largely addressed the consideration of stability and predictability from the
2 utility's perspective. MGE has made no case that it is experiencing anything other than
3 normal weather-related revenue instability from its current rate designs. But even if it were
4 experiencing this, the proposed rate design is a far inferior option to address weather
5 variability than a decoupling mechanism, which can address the utility's situation without
6 interfering with a customer's sense of historical stability in their rates. Preserving the price
7 signal that higher levels of use will increase systems costs over time simultaneously
8 addresses the other part of this consideration: avoiding undesirable rate base expansion.

9 Fairness within the set of customers taking service under a given rate schedule is
10 important but this case includes virtually no information about the differences and
11 similarities of the customers on the affected rate schedules. In response to City of Madison's
12 data request No. 95 (which is attached hereto as *Ex.-NRDC-Morgan-13*), MGE stated that it
13 had no information concerning which of its residential customer accounts were for multi-
14 family residences and which for single-family. Further, it indicated in responses to City of
15 Madison's data requests Nos. 70 and 111 (which are attached hereto as *Ex.-NRDC-Morgan-*
16 *14*), that it has conducted no studies regarding the diversity of single-family, multi-family
17 and small commercial customer loads and does not have any hourly energy loads for these
18 customer accounts. The Commission should not disturb the long-standing relationships
19 among these customers without adequate information that has been developed in an inclusive
20 process.

21 **Q. The Commission has in prior cases looked to comparable utilities' rate designs in**
22 **making decisions. What does such a comparison suggest about the dramatic fixed**
23 **charge increases proposed here?**

A. A comparison to utilities similarly situated to MGE suggests that MGE's proposed customer charge increases are not justified. Certainly the Commission should consider the rates of other Wisconsin investor-owned utilities ("IOUs"). Table 4 below includes a cross-section of these, as well as the customer charges of IOUs in states that the American Council for an Energy Efficient Economy has identified as achieving strong energy efficiency results.⁵⁸

Table 4: Cross-Section of Investor-Owned Utility Monthly Residential Fixed Charges

Regulatory Status	State	Respective Utilities	Monthly Residential Fixed Charge
Vertically Integrated Utilities	California	PG&E	\$0.00
		SCE	\$0.94
		SDG&E	\$0.00
	Oregon	Pacific Power	\$9.50
		Portland General Electric	\$10.00
		Idaho Power	\$8.00
	Vermont	Green Mountain Power Corp	\$13.08
		Burlington Electric Company	\$8.21
		Washington Electric Cooperative	\$11.79
	Washington	Puget Sound Energy	\$7.87
		Pacific Power	\$7.75
		Avista	\$8.00
	Minnesota	MN Power	\$8.00
		Xcel Energy	\$8.00
		Otter Tail	\$8.50
	Arizona	Arizona Public Service	\$8.55
		UniSource Energy	\$10.00
		Tucson Electric Power	\$10.00
	Michigan	Consumers Energy	\$7.00
		Detroit Edison	\$6.00
		Indiana Michigan Power	\$7.25
	Iowa	MidAmerican Energy	\$8.50
		Interstate Power and Light	\$10.50

⁵⁸ Attached hereto as *Ex.-NRDC-Morgan-15* is the source data for Table 4.

Q. Is a comparison to the customer charges of electric utilities in restructured states appropriate?

A. No. The electricity commodity in these states is now at a market price and that provides customers with much of the price signal. The utilities no longer plan for, construct or acquire and put in rate base new generating plants. Utilities in some of these states (selected, again, according to energy efficiency performance) have customer and fixed charges higher than MGE's current customer charge proposed, but there is no clear trend. As the Table 5 below shows, only one – Rochester Gas & Electric – has a residential electric customer charge higher than MGE's proposal.⁵⁹

Table 5: Cross-Section of Distribution Utility Monthly Residential Fixed Charges

Regulatory Status	State	Respective Utilities	Monthly Residential Fixed Charge
Distribution-only Utilities	Massachusetts	NSTAR	\$6.43
		Nationalgrid	\$4.00
		Western Massachusetts Electric	\$6.00
	New York	Niagara Mohawk Power	\$17.00
		Rochester Gas & Electric	\$21.38
		NYSEG	\$15.11
	Connecticut	Connecticut Light and Power	\$16.00
		Groton Utilities	\$11.50
		United Illuminating Power	\$17.25
	Rhode Island	Nationalgrid	\$5.00
		Pascoag Utility District	\$6.00
		Block Island Power Company	\$12.38
	Maryland	PotomacEdison	\$5.00
		Baltimore Gas & Electric	\$7.50
		Delmarva Power	\$7.94
	Illinois	Ameren Illinois	\$10.92
		ComEd	\$14.94
		MidAmerican Energy	\$5.12
	New Jersey	PSE&G	\$2.27
		Atlantic City Electric Company	\$3.00
		Jersey Central Power & Light	\$2.20

⁵⁹ Attached hereto as *Ex.-NRDC-Morgan-16* is the source data for Table 5.

1 **V. REQUEST FOR COMMISSION TO DEVELOP PROCEDURAL AND**

2 **SUBSTANTIVE REQUIREMENTS UPON WHICH TO EVALUATE MGE'S RATES**

3 **Q. Why is it important for the Commission, in this case, to set forth a suite of procedural**
4 **and substantive expectations for future rate designs of Wisconsin's utilities?**

5 A. The energy utility regulatory arena does not have a well-developed process for addressing
6 rate design issues. With a few exceptions, these issues have been largely dormant for many
7 years. Over the last 20 to 30 years, the regulatory arena developed a thorough set of
8 questions to answer, analyses to run and processes to follow to guide decisions about new
9 supply-side or demand-side energy utility resources. Nothing like this exists for rate design.

10 As Section IV of my testimony demonstrates, rate design issues are far from simple. Nor
11 is rate design just about price signals to customers. The purpose, and effect, of a "signal" is
12 to elicit a response. At a minimum, the interaction is two-way – utility to customer and
13 customer to utility – and is continuous, not one time.

14 But MGE and other energy utilities are not just providers of electricity or natural gas
15 delivered to buildings. They are participants in a vast, growing and rapidly changing market
16 for energy services. Other energy providers either already sell or want to sell products and
17 services to the energy end-users on the utility's system. The services utilities offer, whether
18 those services are offered on a monopoly or a competitive basis, and the prices utilities
19 charge for those services will provoke reaction from providers of services that compete—
20 totally or partially – with theirs. Before metaphorically "throwing a rock" in this market
21 "pond," it would behoove all affected parties to attempt to identify the potential ripples. This
22 is all highly dynamic; in other words, it changes over time, to a greater scope and more
23 quickly than we can perceive.

1 **Q. In your experience, has the industry ever overlooked the two-way – utility to customer**
2 **and customer to utility – nature of price signals?**

3 A. Yes. Thirty years ago, many participants in the electric utility system underestimated the
4 feedback nature of utility-customer interaction around rates and bills. In the Northwest,
5 where I began my career in the mid-1980s, this “underestimation” had occurred as follows:
6 after a number of years of 5-7% annual average load growth, utilities began massive
7 investment programs anticipating a continuation of this trend. Prices rose steadily as the new
8 investments got done and entered rate base. For Portland General Electric, the overall rate
9 increase from 1973 to 1983 was about 500%. For a variety of reasons including, surely,
10 price response, the growth in demand dropped precipitously. The Northwest spent much of
11 the 1980’s cleaning up the financial and physical mess left behind this failure to think
12 through “the next move.”

13 But during that time, thirty years ago, the marketplace for energy services was much
14 smaller. Today, technologies that both complement and compete with energy utility services
15 abound, as do businesses hungry to develop new customers or expand relationships with their
16 current customers who also happen to be energy end users. And energy end-users are more
17 diverse than ever. Generational and demographic changes are occurring whether we pay
18 attention or not. Those and other factors are bringing belief and behavior changes that are
19 hard to see until they are pervasive.

20 As the Bonbright quote I included earlier in this testimony says: “No rational discussion .
21 . . of proper rates or rate relationships is possible without reference to the question what
22 desirable results the rate maker hopes to secure, and what undesirable results he hopes to
23 minimize.” The “undesirable results” are not just specific aims but include the vast category

1 known as unintended consequences. This question is, of course, big. What I describe below
2 are guidelines for developing the record that can give the Commission what it needs to
3 wrestle with this big question when it next arises.

4 **Q. Considering your testimony in this case, what procedural guidelines do you think the**
5 **Commission should adopt?**

6 A. Drawing on best practices in integrated resource planning,⁶⁰ I suggest that the Commission
7 require a process that:

- 8 • Is inclusive: everyone who wants to participate, can; and targeted outreach occurs to
9 hear from voices that do not otherwise make it into utility decision-making.
- 10 • Follows a thoughtful plan: before beginning, the utility should consult with
11 participants – and the Commission – on the questions it should work to answer and
12 the information and analyses that will be useful to answering those questions.
- 13 • Produces transparent answers and proposals: all participants should commit to clarity
14 around the assumptions they are making (who, what, where and when) and the
15 theories they are applying (why).

16 **Q. What is the key question for a rate design process?**

17 A. The key question is this: What differences in combinations of buildings/equipment and
18 energy end-users make a difference in: 1) the decisions the end-users make about using
19 energy utility service; and 2) the costs the utility incurs to provide it, now and in the future?

20 Not all of the possible differences in buildings/equipment and energy end-users will make
21 a difference in the current costs of the utility service. Those current costs are based on

⁶⁰ In 2012, I led a project for the Montana Public Service Commission to study best practices in Integrated Resource Planning and develop recommendations for changes to Montana's resource planning and acquisition rules.

1 assumptions, of various vintages, the underlie investment and operating decisions in the
2 utility's hard and soft infrastructure, such as:

- 3 • The physical distribution system
- 4 • The electricity generation or natural gas supply portfolio
- 5 • The customer support systems and processes

6 In my experience, these assumptions are often not widely known and may reflect choices
7 among trade-offs that deserve broader consideration. In any event, assumptions often must
8 change over time. Differences that do, or can, make a difference in end-user decisions and
9 utility costs are candidates for rate design.

10 **Q. How can stakeholders begin to work at this key question?**

11 A. A good way to work at this is to look at combinations of buildings/facilities and customer
12 accounts (and the energy end-users that comprise those accounts) whose utility bills, load
13 profiles, or other utility-related statistics fall into one or more groupings on either side of "the
14 norm." For example: why do households that use less or more monthly electricity than the
15 average or median do so? Is it all the time or just some months? In what ways are the
16 buildings/equipment or end/users different? Which of these differences appear to "cause" the
17 difference in use of the utility service?

18 To do this well, it is necessary to have a strong set of information about:

- 19 • The characteristics of the buildings or equipment connected to a meter: Age? Size?
20 Materials? Stand-alone or with shared walls? Types of energy used? Average
21 amounts of each type? Variations in the amounts of each type over a 24-hour cycle, a
22 week, a month or season? Energy-using equipment present? Energy efficiency of
23 that equipment? Existence of energy management, generation or storage equipment?

- The characteristics of the individuals or organizations in the buildings or using the equipment: Demographic? Nature of organizational activity? Energy-related beliefs? Energy-related behaviors? Practices around utility billing and remittance and use of utility contact points?

The information MGE presented in this case in support of its rate design proposal is mostly about “the average customer.” But no customer is average. And it is in the differences that the best foundation will exist for making rate design decisions.

Q. Will identifying these “differences” be enough to make rate design decisions?

A. Not quite. Once the stakeholders have a set of possible rate design changes, it will be necessary then to ask the following:

- How might customers change their behavior with respect to the utility service based on these rate design changes?
- Who (service) and what (product) might be waiting to help them change their behavior?
- What will this mean for the cost of the utility service and the utility providing it?

These will all be conjecture, of course, and processes should be put in place to track what actually happens so that stakeholders can learn from that and apply their experiences the next time around.

Q. So will this process for looking at rate design need to happen more than once?

A. Yes. As I mentioned above, the environment within which utilities offer and people use utility services is very dynamic. It may be necessary to ask the key questions with recent information fairly often.

1 **Q. Does the dynamic nature of the utility environment have implications for the usefulness**
2 **of putting in place a decoupling mechanism?**

3 A. Yes. Remember that under traditional ratemaking, in which sales pursuant to the designed
4 billing determinants dictate whether or not the utility can recover its costs of service
5 (including the cost of obtaining equity capital), it is crucially important to the utility that it be
6 able to model exactly how its customer accounts will respond to the billing determinants it
7 uses. The revenue model a utility runs is as important as its revenue requirement model.
8 Experimenting with different billing determinants, let alone the content of utility services,
9 will make it difficult, if not impossible, to run a revenue model with any degree of
10 confidence. A decoupling mechanism can mitigate the utility's concern, freeing the utility
11 and the Commission to focus on the customer side.

12 **Q. You just mentioned that significant rate design changes could decrease a utility's**
13 **confidence in its revenue model. Should the dramatic changes MGE has proposed**
14 **cause it to question whether it will actually collect the revenues it has modeled?**

15 A. Yes. At some point, and in ways that are hard to predict, customers will "react" if the
16 Commission approves almost doubling these fixed charges for residential and small
17 commercial accounts. There may be a lag and the reaction may get lost initially in
18 "averages" for the affected customer rate schedules and classes. Given the choices that
19 already exist, however, and the ones aggressively innovative companies might come up with,
20 it is hard to believe that customers adversely affected will do nothing. Indeed, a "customer
21 reaction" is already being predicted by researchers at Morgan Stanley, who opined in a recent
22 report that attaching high fixed charges to solar distributed generation customers may trigger

1 a “tipping point” that causes customers to seek an off-grid approach – i.e. raising fixed
2 charges for these customers are likely to drive more exits from the grid.⁶¹

3 **Q. If MGE does not “see” the reaction and does not change anything about its services or**
4 **their cost structure and drivers, what will happen?**

5 A. It will just put the now-missing revenue in these same billing determinants, or perhaps some
6 other billing determinant. Those rates will rise, the customer reaction will intensify, and the
7 cycle will repeat.

8 **Q. Aren’t you describing the “utility death spiral” you dismissed at the beginning of your**
9 **testimony?**

10 A. Yes. That scenario depends on a long-running cycle of utility pricing action and customer
11 reaction with neither side paying any attention to the other. Metaphorically, imagine the
12 utility lobbing balls that represent prices for the various billing determinants over a wall.
13 Customers react and lob back balls that represent the revenues under those various billing
14 determinants. The utility looks at the balls it gets back and re-sizes them to equal its revenue
15 requirement. It lobs them back. On and on this goes, with revenue requirement getting
16 larger and the revenues coming back getting smaller.

17 Eventually, the utility on its own initiative or in response to regulation will take a serious
18 look at its services and costs. The procedural and substantive guidelines I described in this
19 section would jumpstart that.

20 **VI. CONCLUSION AND RECOMMENDATIONS**

21 **Q. Please restate your recommendations in this case.**

22 A. I recommend that the Commission:

⁶¹ See <http://www.greentechmedia.com/articles/read/Solar-Fixed-Charges-May-Cause-Grid-Defection>

- 1 1. Reject MGE's proposed increases to its residential and small commercial gas and
2 electricity customer and fixed charges.
- 3 2. Open a docketed process that begins to identify procedural steps and substantive
4 requirements for addressing the rate design changes proposed by Wisconsin's
5 investor-owned utilities, to include not just MGE, but WPSC and We Energies as
6 well. Begin creating procedural steps and substantive requirements for any rate
7 design changes proposed by the other investor-owned Wisconsin utilities.
- 8 3. Decline to approve any further rate design changes based primarily on MGE's
9 financial needs and, instead, in the context of the docketed process I recommend,
10 consider other options for MGE to address any revenue erosion or instability.
- 11 4. Decline to approve any further rate design changes based on MGE's customers, and
12 instead, in the context of the docketed process I recommend, require MGE to provide
13 more complete customer information, including: what customers are changing their
14 use of the service and why they are changing; how the proposed rate design change
15 will affect customer behavior; and what MGE, in turn, is doing in terms of investment
16 and operations.

17 **Q. Does this conclude your rebuttal testimony?**

18 A. Yes.